Masami MIZUSHIMA*: A preliminary revision of the genus *Sagina* of Japan and its adjacent regions. 2

(Critical studies on Japanese plants 6)**

水島正美*: 日本及び近隣地域のツメクサ属 (2)

(日本植物寸評 6)**

§ **Taxonomy and Nomenclature**—In the first part of this study, the variation and stability of characters were dealt with. In this chapter the subject is turned to the taxonomy and nomenclature of the genus *Sagina* and its 6 species represented in our area.

SAGINA Linnaeus, Sp. Pl. ed. 1, **1** : 128 (1753); Gen. Pl. ed. 5, 62 (1754)—Séringe in DC., Prodr. **1**: 389 (1824)—C. Presl, Rel. Haenk. **2** : 14 (1831)—Fenzl in Endl. Gen. Pl. 963 (1840)—Koch, Synop. Fl. Germ. et Helv. ed. 2, 117 (1843)—Bentham et Hooker fil., Gen. Pl. **1** (1): 151 (1862)—Boissier, Fl. Orient. **1**: 662 (1867)—Pax in Engl. u. Prantl, Nat. Pfl.-fam. Bd. III (1 b): 81 (1889)—Ascherson u. Graebner, Synop. Mitteleur. Fl. **5** (1): 781 (1918)—Moss & Hunnybun, Cambr. Brit. Fl. **3**: 24 (1920)—Pax u. Hoffmann in Nat. Pfl.-fam. **16 c**, 326 (1934).

Spergula L., Sp. Pl. ed. 1, **1**: 440 (1753), pro parte; Gen. Pl. ed. 5, 199 (1754), pro parte.

Phaloe Dumortier, Fl. Belg. 110 (1827), not seen.

Spergella Reichenbach in Moessler, Handb. d. Gewächsk. ed. 2, **1**: 65 (1827), not seen; Fl. Germ. Excurs. 794 (1832).

Type species: *Sagina procumbens* L.

Key to Series

1. Flowers tetramerous ....Ser. 1. *Sagina*.
1. Flowers pentamerous...... ....Ser. 2. *Subulatae* Moss et Hunn.

Series 1. SAGINA.

Sagina L., sensu str.

Sect. *Saginella* Koch, Synop. Fl. Germ. et Helv. ed. 2, 117 (1843)—Williams in Bot. Soc. & Exch. Cl. Brit. Isl. **5**: 191 (1918)—Aschers. u. Graebn., Synop. Mitteleur. Fl. **5** (1): 795 (1919)—Steinberg in Fl. URSS **6**: 474 (1936).

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**Contribution no. 2 from Makino Herbanium of Tokyo Metropolitan University.

Sect. *Saginella* Fenzl apud Pax in Nat. Pfl.-fam. Bd. III (1 b): 81 (1889).

Subgen. *Eusagina* Williams in Journ. Bot. **34**: 427 (1896), nom. nud. cum sect. *Procumbentes* Will. & sect. *Maritimae* Will.

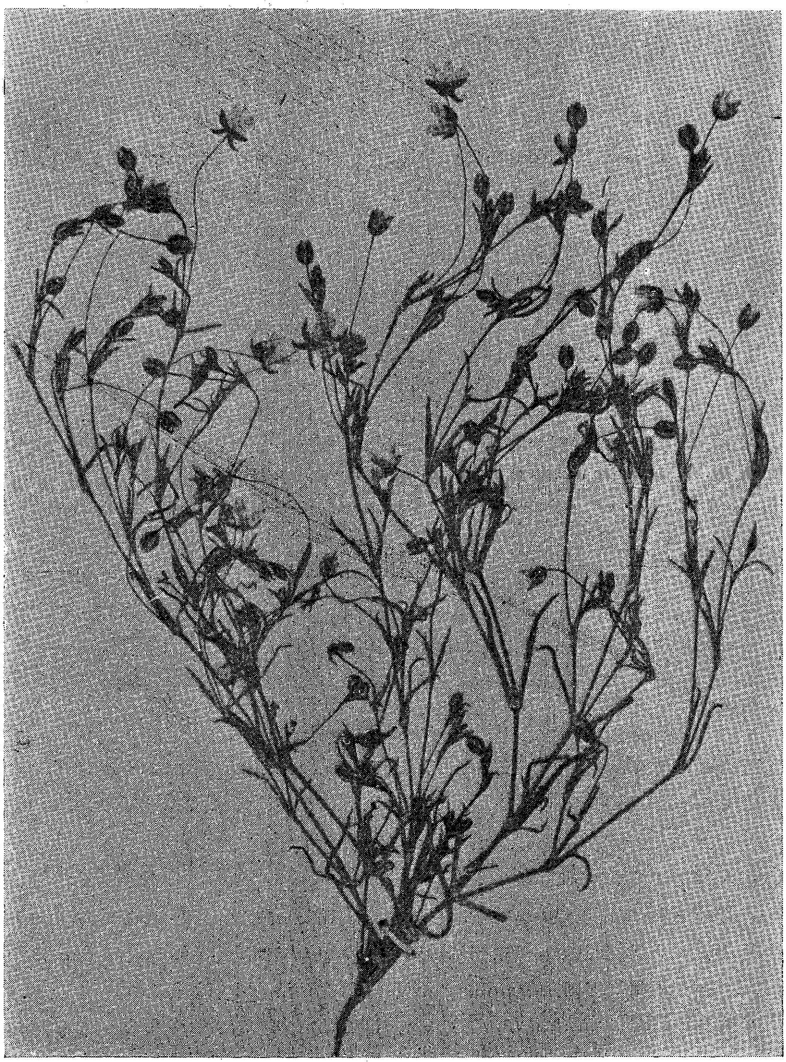

Fig. 1. *S. apetala* from Dehra Dun, India. ×1.5.

Sect. *Alsinella* (Kramer 1744) O. Kuntze in Post u. O. Ktz., Lexic. Gen. Phan. 495 (1903).

Sect. *Saginella* Koch subsect. 1. *Procumbentes* & subsect. *Maritimae* Will., l. c. 191, 192 (1918), nom. nud.

Ser. iii. *Procumbentes* Moss & Hunn., Cambr. Brit. Fl. **3**: 24, 29 (1920).

Ser. iv. *Apetalae* Moss & Hunn., l. c. 24, 30 (1920).

Sepals 4. Petals 4—0. Stamens usually 4. Styles 4. Capsules dehisce into 4 valves. Exceptionally pentamerous.

Type species: *S. procumbens* L.

In our region, the series is represented by *S. apetala* Ard. and *S. procumbens* L.

Series 2. SUBLATAE Moss et Hunnybun, Cambr. Brit. Fl. **3**: 24, 25 (1920).

Phaloe Dumort., l. c.

Spergella Reichb., ll. cc.

Spergula L. sect. *Spergella* (Reichb.) Koch, Synop. Fl. Germ. et Helv. ed. 2, 118 (1843)—Aschers. u. Graebn., l. c. 782 (1918)—Will., l. c. 192 (1918).

Sect. *Spergella* Reichb. apud Pax, l. c. (1889)—Steinberg in Fl. URSS **6**: 472 (1936).

Subgen. *Spergella* (Reichb.) Williams in Journ. Bot. **34**: 427 (1896).

Sect. *Phaloe* (Dumort.) O. Kuntze in Post u. O. Ktz., Lexic. Gen. Phan. 495 (1903).

Ser. i. *Nodosae* Moss et Hunn., l. c. 24 (1920).

Sepals 5. Petals 5. Stamens 10—5. Styles 5. Capsules dehisce into 5 valves. Exceptionally tetramerous.

Type species: *S. subulata* (Sw.) C. Presl.

In our region, the series is represented by *S. intermedia* Fenzl, *S. japonica* (Sw.) Ohwi, *S. maxima* A. Gray, and *S. saginoides* (L.) Karst.

Key to E. Asiatic species

1. Flowers normally tetramerous: petals minute or wanting 2

1. Flowers normally pentamerous and/or petals prominent but shorter than the calyx 3

2. Pedicels strict after anthesis, usually glandullarpilose as in the calyx: at least upper leaves ciliate with eglandular hairs towards the base ....1) *S. apetala.*

2. Pedicels strongly hooked downwards near the top after anthesis: plant usually glabrous throughout and perennial .... 2) *S. procumbens.*

3. Plant glabrous throughout: pedicels hooked after anthesis: seeds grooved dorsally, smooth to granulate: capsules usually as long as 1.5 times of sepals.. 3) *S. saginoides.*

3. Plant usually glandular-pilose in the upper part or entirely glabrous: pedicels strict.. 4

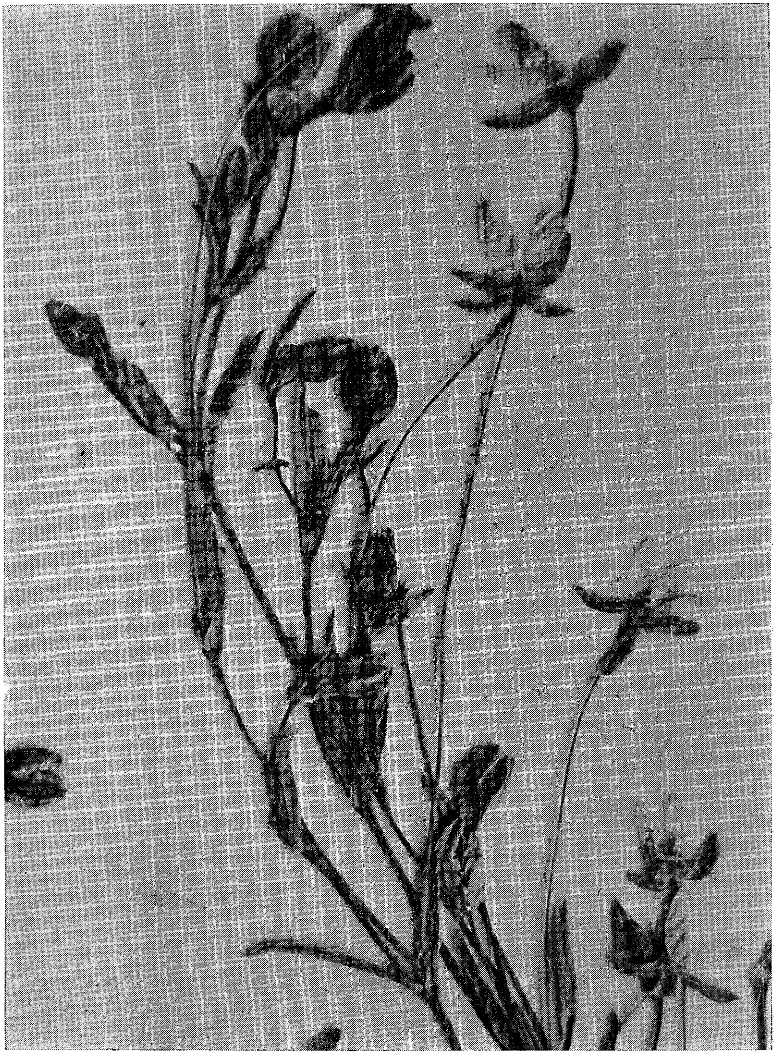

Fig. 2. *S. apetala* from Dehra Dun, India showing spreading sepals. ×5.

4. Rosette-leaves subulate: plant entirely glabrous: sepals usually tinged with dark purple at least on the margin: ripe seeds grooved on the back...4) *S. intermedia.*
4. Rosette-leaves linear: plant usually glandular-pilose in the upper part: ripe seeds rounded or flattish on the back 5
5. Seeds papillose throughout: plant usually of inland........... 5) *S. japonica.*
5. Seeds smooth to granulate: plant usually of sandy seashore.............. ....6) *S. maxima.*

1) **Sagina apetala** Arduino, Animadv. Bot. Sp. **2**: 22 (1764) & t. 8, fig. 1 (1763), not seen—Sér. in DC., Prodr. **1**: 389 (1824)—Koch, Synop. Pl. Germ. et Helv. ed. 2, 118 (1843)—Boiss., Fl. Orient, **1**: 663 (1867)—Will. in Bot. Soc. & Exch. Cl. Brit. Isl. **5**: 194 (1918)—Moss & Hunn., Cambr. Brit. Fl. **3**: 30 (1920) excl. pl. 30—Steinberg in Fl. URSS **6**: 474, t. XXV, 6 (1936)—Kashyap, Lahore Distr. Fl. 39, fig. 26 (1936)—Ohwi in Acta Phytotax. Geobot. **11**: 252 (1942) in textu—Parsa, Fl. Iran **1** (2): 1149 (1951).

A slender annual. Central rosette finally bearing flowers. Lateral branches capillary, glandular-pilose towards the upper part. Leaves tapering into an awn which is shorter than the width, ciliate towards the base with eglandular hairs or glabrous. Pedicels (5—) 10—22 mm long, filiform and erect in fruit, glandular-pilose or sometimes glabrous. Sepals 4, ovate-oblong, cucullate and obtuse at the tip, outer 2 more pointed, glandular-pilose on the back, horizontally spreading in mature fruit. Petals minute or none. Stamens 4. Capsules surpassing np to 1.5 times the calyx. Seeds brown, deltoid, smooth to rugose, flattish laterally, grooved dorsally. Chromosome number $2n=12$.

Spec. exam. JAPAN: Senda-chô, Hiroshima City, Hiroshima Pref. (prov. Aki) (May 16, 1942, Yoshio Doi, no. 50416—MAK no. 2631).

INDIA: Kashmir (Falconer, no. 263—P), 2 out of 4 plants mounted on the sheet belong to *S. saginoides*; Thelam valley near Pinri, Kashmir, 5-6000 ft. (May 13, 1892, J. F. Duthie, no. 10888—DD), 1 out of 2 plants mounted on the same sheet is *S. saginoides*; Kaulagarh, Dehra Dun, Uttar Pradesh (Mar. 18, 1928, R. N. Parker—DD); New Forest, Dehra Dun, Uttar Pradesh (Mar. 1930, M. B. Raizada—DD).

Distr. *Europaeo-Mediterranean;* Europe northwards to Denmark and south Sweden up to 57° 30′ N, central European Russia, Caucasus, Asia Minor, north Africa; introduced into N. & S. America, northwest India (partly indigenous?) and Japan.

(to be continued)